

What is Claimed is:

- 1 1. A passivation layer for packaging organic electroluminescent (EL) components,
2 the passivation layer being a polymer passivation layer or a wet-adsorption polymer
3 passivation layer comprising:
4 at least a wet-adsorption or an inorganic filler agent; and
5 at least a solvent or nonsolvent, thermo-curing or UV-curing polymer
6 material;
7 wherein the filler agent is blended with a polymer material to form a wet-
8 adsorption polymer protective layer for filling up or overlaying the organic EL
9 components.
- 1 2. The wet-adsorption polymer passivation layer according to claim 1, wherein the
2 addition ratio of the filler agent and the high molecular material are 1 ~ 90%
3 respectively so as to produce the wet-adsorption polymer protective layer.
- 1 3. The wet-adsorption polymer passivation layer according to claim 1, wherein the
2 polymer material is any of Epoxy, Acrylic, Urethane, Epoxy/Acrylic,
3 Acrylic/Urethane, Silicone, Silioxane, or Organic/Inorganic hybrid.
- 1 4. The wet-adsorption polymer passivation layer according to claim 1, wherein a
2 wet-adsorption material of the filler agent is either a physical or a chemical
3 adsorption material; and the grain size of the filler agent is about 0.1 mm ~ 10 μ m.
- 1 5. The wet-adsorption polymer passivation layer according to claim 4, wherein the
2 chemical adsorption is at least a compound of the following: namely, an alkali
3 metallic oxide, an alkaline earth metallic oxide, a sulfate compound, a halogen
4 metallic compound, or a perchlorate compound.

1 6. The wet-adsorption polymer passivation layer according to claim 4, wherein the
2 alkali metallic oxide is either K_2O or Na_2O .

1 7. The wet-adsorption polymer passivation layer according to claim 4, wherein the
2 alkaline earth metallic oxide is CaO , BaO , or MgO .

1 8. The wet-adsorption polymer passivation layer according to claim 4, wherein the
2 sulfate compound is Li_2SO_4 , Na_2SO_4 , $MgSO_4$, $CoSO_4$, $Ga_2(SO_4)_3$, $Ti(SO_4)_2$, or
3 $NiSO_4$.

1 9. The wet-adsorption polymer passivation layer according to claim 4, wherein the
2 halogen metallic compound is $CaCl_2$, $MgCl_2$, $SrCl_2$, YCl_2 , $CuCl_2$, CsF , TaF_5 , NbF_5 ,
3 $CaBr_2$, $CsBr_3$, $SeBr_4$, VBr_2 , $MgBr_2$, BaI_2 , or MgI_2 .

1 10. The wet-adsorption polymer passivation layer according to claim 4, wherein
2 the perchlorate compound is either $Ba(ClO_4)_2$ or $Mg(ClO_4)_2$.

1 11. The wet-adsorption polymer passivation layer according to claim 1, wherein
2 the thermal expansion coefficient of the passivation layer is located in the range of
3 $1 \sim 100 \text{ ppm}/^\circ\text{C}$, however, $5 \sim 20 \text{ ppm}/^\circ\text{C}$ is preferable.

1 12. The wet-adsorption polymer passivation layer according to claim 1, which is
2 formed by way of spraying, screen-printing, dispensing, or spincoating so as to fill
3 up or overlay the EL components.

1 13. A method for packaging organic electroluminescent (EL) components with
2 polymer passivation layer, comprising:

3 plating at least a wet-adsorption passivation layer on a flexible substrate
4 made in glass, metal, or plastics;

5 forming a plurality of organic EL component's pixels and cathode

6 separators on the substrate, wherein at least a sub-layer of the passivation layer is a
7 polymer layer; and the passivation layer is applied to fill up the gaps between the
8 pixels and the cathode separators; and

9 sealing the surface of the entire passivation layer by overlaying a package
10 material thereon.

1 14. The method for packaging organic EL components according to claim 13,
2 wherein the wet-adsorption passivation layer is composed of:

3 a polymer material, which is a solvent or nonsolvent, thermo-curing or UV-
4 curing, organic or Inorganic material; and

5 a filler agent, which is a wet-adsorption material or an inorganic material.

1 15. The method for packaging organic EL components according to claim 13,
2 wherein the wet-adsorption passivation layer is formed by spraying, screen-
3 printing, dispensing, or spincoating to produce a plurality of mask patterns for
4 overlaying the EL components.

1 16. The method for packaging organic EL components according to claim 15,
2 wherein the amount of mask pattern is equal to that of the EL component's
3 domains; and each mask pattern is slightly larger than a paired off domain in area
4 occupied at a correspondent position.

1 17. The method for packaging organic EL components according to claim 13,
2 wherein the thickness of the polymer passivation layer should never be thinner than
3 the height of the cathode separators and is controlled preferably between 1 ~ 1000
4 μm .

1 18. The method for packaging organic EL components according to claim 13,

2 wherein the package material is an Epoxy gel, an Acrylic gel, a Silicone gel, or any
3 of various thermo-curing or UV-curing materials.

1 19. A package structure for organic EL components with polymer or wet-
2 adsorption polymer passivation layer, comprising:

3 a flexible substrate made in glass, metal or plastics, having a plurality of
4 organic EL component's pixels and cathode separators disposed thereon, an
5 Indium-Tin oxide (ITO) anode layer formed between the substrate and the pixels to
6 serve as an anode of the latter, wherein a cathode layer is laid on each pixel;

7 at least a polymer or a wet-adsorption polymer passivation layer being
8 formed directly between the pixels and the cathode separators and on surface of the
9 pixels; an optional inorganic or metallic layer being formed in an arbitrary order on
10 top of the wet-adsorption polymer passivation layer depending on requirements;
11 and

12 a polymer package layer for sealing the entire surface of the passivation
13 layer, or the inorganic and/or the metallic layer if applied.